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TC 1700 MAIL ROOM

APPENDIX B
(Marked-Up Copy Of Amended Claims)

1. (Amended) A method for processing a material by locally raising [the] a temperature of [a] the material by transferring energy to the material in order to facilitate chemical reactions or processes related to processing of the material, comprising the [step of using an electrode to apply to the material a controlled] steps of:

providing a cryogenic medium;

causing an electrode to emit or attract electrons by applying voltage pulses to the electrode to cause propagation of a succession of thermal spikes or shockwaves in the cryogenic medium[, of]; and

varying an energy [through a growth medium, said] of the thermal spikes or shockwaves [of] by varying the energy [being generated by] of said electrons emitted by or attracted to the electrode,

wherein a dimension of said thermal spikes or shockwave is on the order of less than one nanometer to several tens of micrometers, and

[an] a total area of the material affected by [the resulting] energy [transfer] carried by the thermal spikes or shockwaves, is on the order of less than one nanometer squared to several tens of square micrometers.

4. (Amended) A method as claimed in claim 2, wherein said thermal spikes or shockwaves are generated by transmitting electrons in a direction generally parallel to a surface of the material, said electrons being transmitted in said generally parallel direction from said electron emitter tip towards an anode [in a direction generally parallel to a surface of the material].

6. (Amended) A method as claimed in claim 1, wherein the [growth] medium is [a cryogenic material] in a gas, liquid, or supercritical state.

8. (Amended) A method as claimed in claim 1, wherein [said thermal spikes or shockwaves are generated by supplying to the electrode fast] said voltage pulses are variable voltage pulses of on the order of a few picoseconds to hundreds of nanoseconds.
10. (Amended) A method as claimed in claim 9, wherein said processing includes deposition of materials, followed by cleaning of [the] a resulting product.
13. (Amended) A method as claimed in claim 12, wherein [said etch] gases used in said etching are selected from the group consisting of hydrogen, chlorine, and fluorine.
14. (Amended) A method as claimed in claim 1, wherein said processing includes growth of said material in a growth subcell, and etching and cleaning of the material in respective cleaning and etching subcells, said growth, cleaning, and etching subcells all being in communication and situated in a single growth cell [to permit recycling of etched materials].
15. (Amended) A method as claimed in claim 1, wherein said processing includes growth of said material in a growth sub-area, and etching and cleaning of the material in respective cleaning and etching sub-areas, said growth, cleaning, and etching sub-areas all being in communication and situated in a single growth cell [to permit recycling of etched materials].